Standard Rectifier Module

V_{RRM}	=	2x 1200 V
I_{FAV}	=	35 A
V_F	=	1.1 V

Phase leg

Part number

MDMA35P1200TG
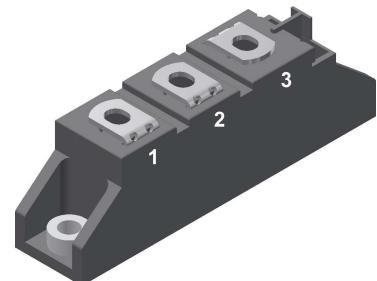
Backside: isolated

E72873

2   1   3
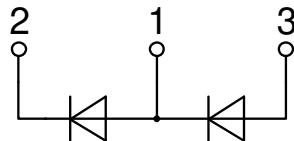
Features / Advantages:

● Package with DCB ceramic
● Improved temperature and power cycling
● Planar passivated chips
● Very low forward voltage drop
● Very low leakage current

Applications:

● Diode for main rectification
● For single and three phase
  bridge configurations
● Supplies for DC power equipment
● Input rectifiers for PWM inverter
● Battery DC power supplies
● Field supply for DC motors

Package: TO-240AA

● Isolation Voltage: 4800 V~
● Industry standard outline
● RoHS compliant
● Height: 30 mm
● Base plate: DCB ceramic
● Reduced weight
● Advanced power cycling

Disclaimer Notice

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evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for,
and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

MDMA35P1200TG

Rectifier

Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25°C$				1300	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25°C$				1200	V
I_R	reverse current	$V_R = 1200$ V	$T_{VJ} = 25°C$			20	µA
		$V_R = 1200$ V	$T_{VJ} = 150°C$			1.5	mA
V_F	forward voltage drop	$I_F = 35$ A	$T_{VJ} = 25°C$			1.15	V
		$I_F = 70$ A				1.34	V
		$I_F = 35$ A	$T_{VJ} = 125°C$			1.10	V
		$I_F = 70$ A				1.35	V
I_{FAV}	average forward current	$T_C = 100°C$ rectangular d = 0.5	$T_{VJ} = 150°C$			35	A
V_{F0}	threshold voltage } for power loss calculation only		$T_{VJ} = 150°C$			0.83	V
r_F	slope resistance					7.3	mΩ
R_{thJC}	thermal resistance junction to case					0.9	K/W
R_{thCH}	thermal resistance case to heatsink				0.2		K/W
P_{tot}	total power dissipation	$T_C = 25°C$				130	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$			500	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			540	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			425	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			460	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$			1.25	kA²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			1.22	kA²s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			905	A²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			880	A²s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz	$T_{VJ} = 25°C$		19		pF

Package   TO-240AA

Symbol	Definition	Conditions			min.	typ.	max.	Unit
				Ratings				
I RMS	RMS current	per terminal					200	A
T VJ	virtual junction temperature				-40		150	°C
T op	operation temperature				-40		125	°C
T stg	storage temperature				-40		125	°C
Weight						76		g
M D	mounting torque				2.5		4	Nm
M T	terminal torque				2.5		4	Nm
d Spp/App	creepage distance on surface | striking distance through air	terminal to terminal		13.0	9.7			mm
d Spb/Apb		terminal to backside		16.0	16.0			mm
V ISOL	isolation voltage	t = 1 second	50/60 Hz, RMS; I$_{ISOL}$ ≤ 1 mA		4800			V
		t = 1 minute			4000			V
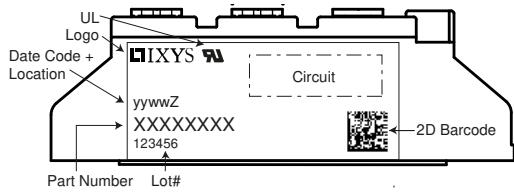
Part description

M = Module
D = Diode
M = Standard Rectifier
A = (up to 1800V)
35 = Current Rating [A]
P = Phase leg
1200 = Reverse Voltage [V]
TG = TO-240AA

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MDMA35P1200TG	MDMA35P1200TG	Box	36	515021

Equivalent Circuits for Simulation   *on die level*   T$_{VJ}$ = 150°C

Rectifier

V$_{0\,max}$	threshold voltage	0.83	V
R$_{0\,max}$	slope resistance *	6.1	mΩ

Outlines   TO-240AA

$30.2 \, ^{+0.8}_{-0.2}$ 28.5   0.25

$7.5 \, ^{+0.4}_{-0.1}$ 23.5 29.7 ± 0.2

65 x 19
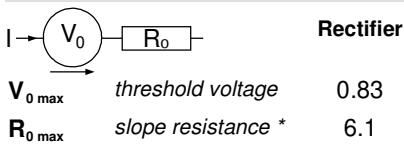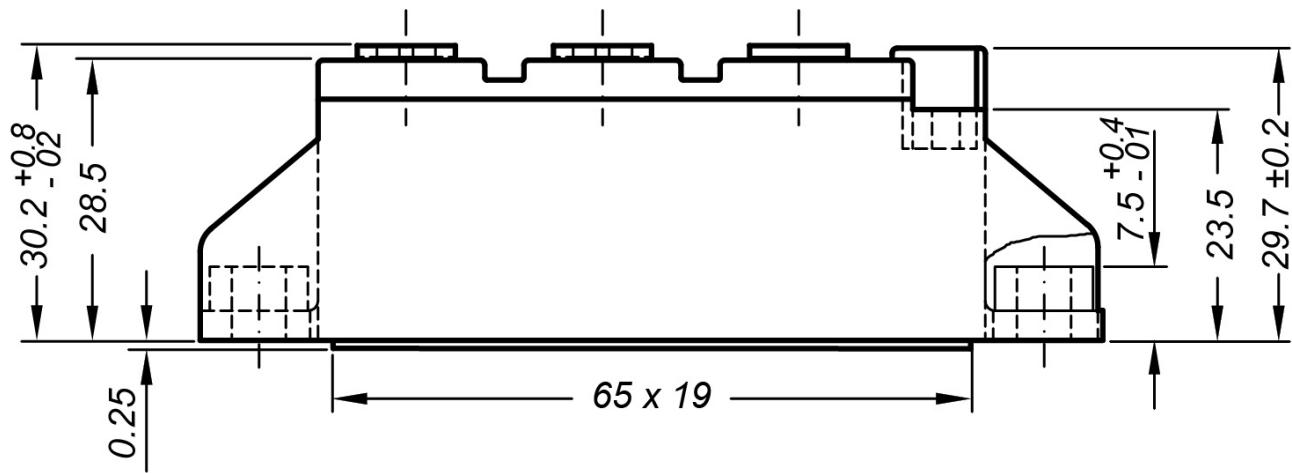
General tolerance: DIN ISO 2768 class „c"

92 ± 0.5

80 ± 0.3 6

M5

5.5 ± 0.1

20.8 ± 0.25 14.8 10 ± 0.1

1   2   6   7   4   5   3

25 ± 0.3

45 ± 0.3

65 ± 0.3

2   1   3
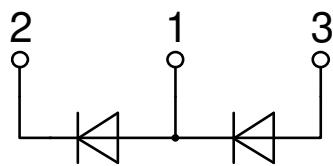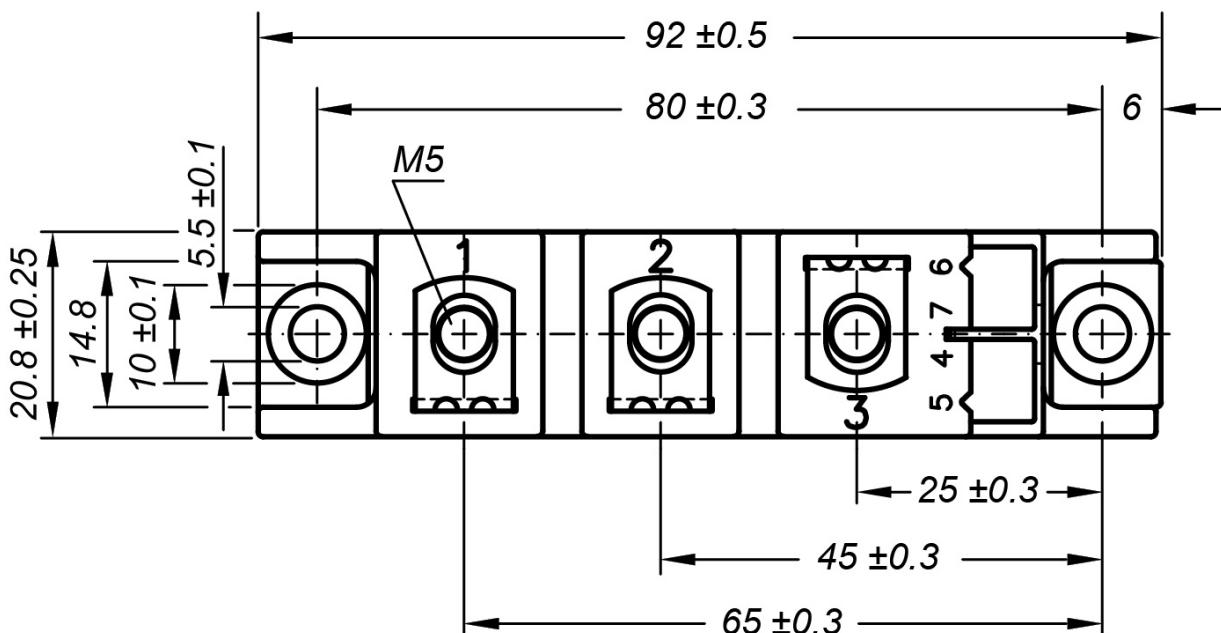
Rectifier
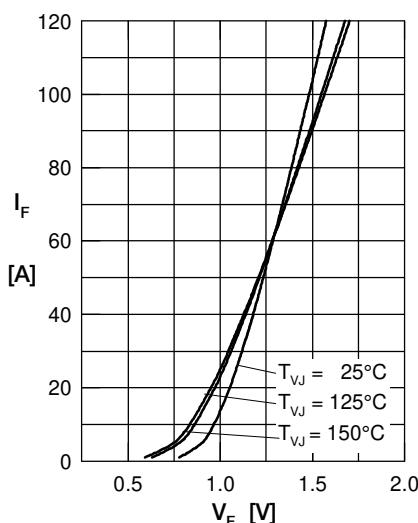
Fig. 1 Forward current versus voltage drop per diode
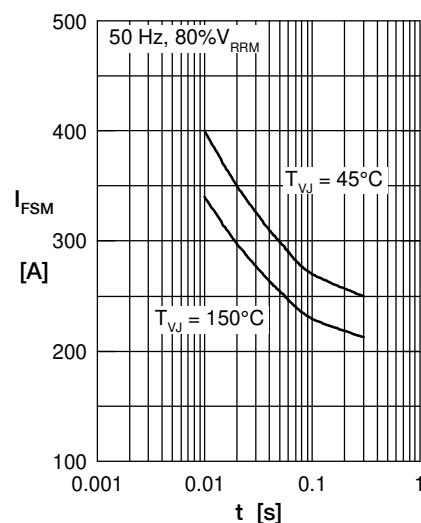
Fig. 2 Surge overload current vs. time per diode
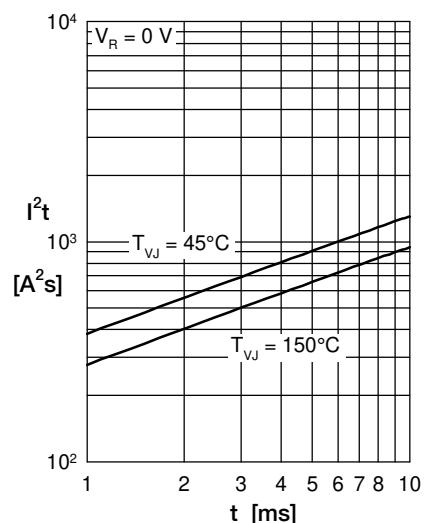
Fig. 3 I^2t versus time per diode
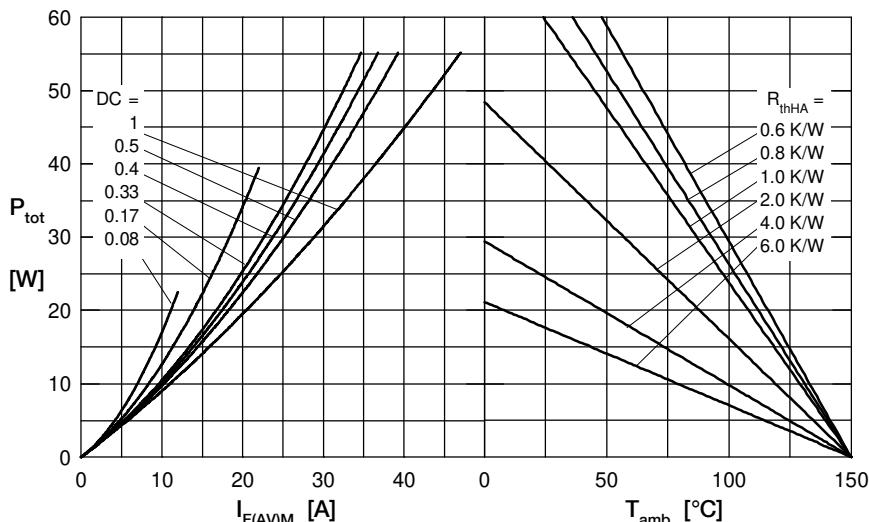
Fig. 4 Power dissipation vs. forward current and ambient temperature per diode
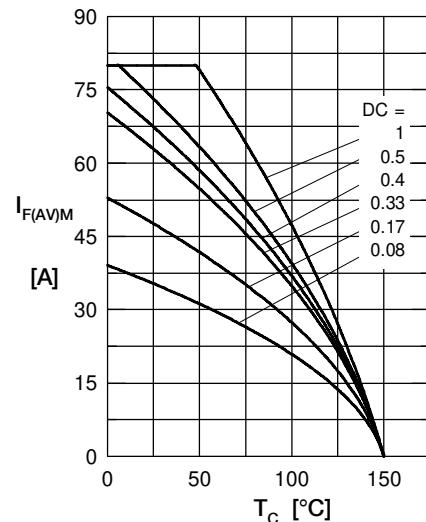
Fig. 5 Max. forward current vs. case temperature per diode
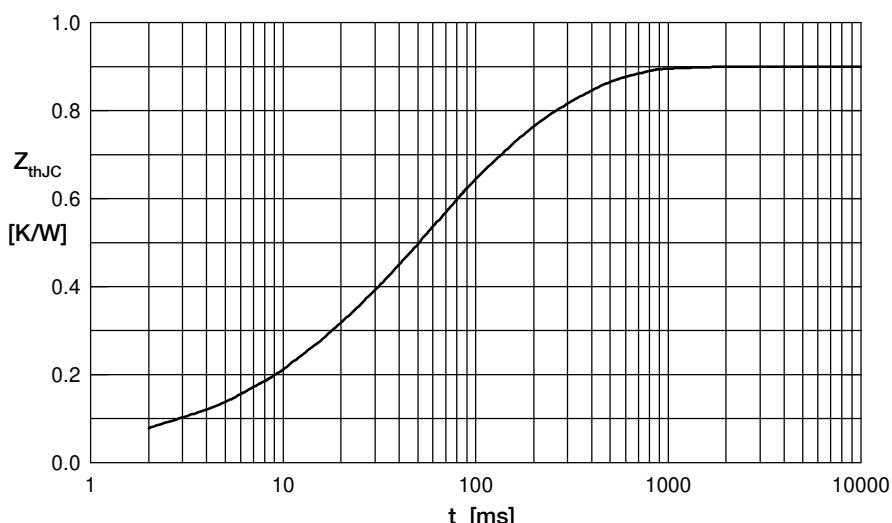
Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.042	0.001
2	0.128	0.010
3	0.425	0.050
4	0.305	0.230

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per semiconductor unless otherwise specified   20191202d